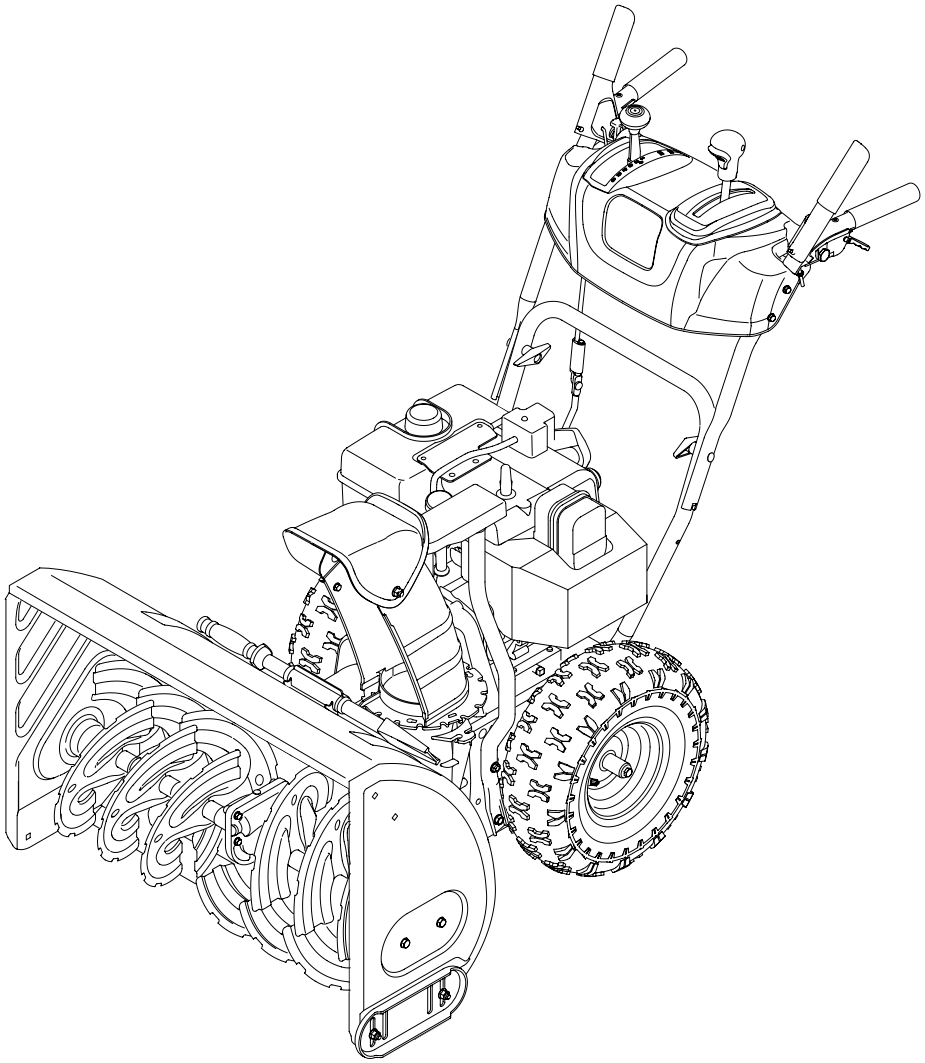
White OUTDOOR®

Operator's Manual



500 series Snowthrow

IMPORTANT: Read safety rules and instructions carefully before operating equipment.

60 OTTAWA STREET SOUTH, KITCHENER, ONTARIO N2G 3S7

Printed in U.S.A.

FORM NO. 772C0714
(7/2004)

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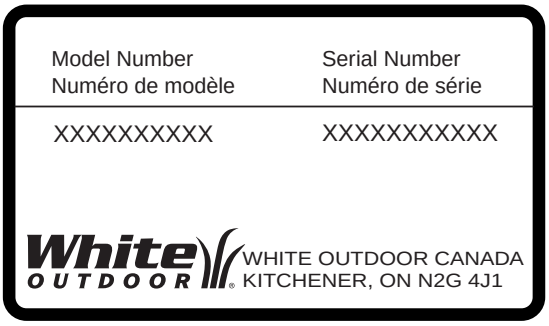
FINDING MODEL NUMBER

This Operator's Manual is an important part of your new snow thrower. It will help you to assemble, prepare and maintain the unit for best performance. Please read and understand what it says.

Before you start assembling your new snow thrower, please locate the model plate on the equipment and copy the information from it in the space provided below. The information on the model plate is very important if you need help from an authorized dealer.

•You can locate the model number by standing behind the unit in the operating position and looking down at the dash panel. A sample model plate is explained below. For future reference, please copy the model number and the serial number of the equipment in the space below.



Copy the model number here: _____

Copy the serial number here: _____

ENGINE INFORMATION

The engine manufacturer is responsible for all engine-related issues with regards to performance, power-rating, specifications, warranty and service. Please refer to the engine manufacturer's Owner's/Operator's Manual packed separately with your unit for more information.

CALLING CUSTOMER SUPPORT

If you have difficulty assembling this product or have any questions regarding the controls, operation or maintenance of this unit, please call an authorized dealer.

Please have your unit's model number and serial number ready when you call. See previous section to locate this information.

SECTION 1: IMPORTANT SAFE OPERATION PRACTICES

WARNING: This symbol points out important safety instructions which, if not followed, could endanger the personal safety and/or property of yourself and others. Read and follow all instructions in this manual before attempting to operate this machine. Failure to comply with these instructions may result in personal injury. When you see this symbol—**heed its warning**.

WARNING: Engine Exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to State of California to cause cancer and birth defects or other reproductive harm.

DANGER: This machine was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. This machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

Training

1. Read, understand, and follow all instructions on the machine and in the manual(s) before attempting to assemble and operate. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Be familiar with all controls and their proper operation. Know how to stop the machine and disengage them quickly.
3. Never allow children under 14 years old to operate this machine. Children 14 years old and over should read and understand the operation instructions and safety rules in this manual and should be trained and supervised by a parent.
4. Never allow adults to operate this machine without proper instruction.
5. Thrown objects can cause serious personal injury. Plan your snow throwing pattern to avoid discharge of material toward roads, bystanders and the like.
6. Keep bystanders, helpers, pets and children at least 75 feet from the machine while it is in operation. Stop machine if anyone enters the area.
7. Exercise caution to avoid slipping or falling, especially when operating in reverse.

Preparation

1. Thoroughly inspect the area where the equipment is to be used. Remove all door mats, newspapers, sleds, boards, wires and other foreign objects which could be tripped over or thrown by the auger/impeller.
2. Always wear safety glasses or eye shields during operation and while performing an adjustment or repair to protect your eyes. Thrown objects which ricochet can cause serious injury to the eyes.
3. Do not operate without wearing adequate winter outer garments. Do not wear jewelry, long scarves or other loose clothing which could become entangled in moving parts. Wear footwear which will improve footing on slippery surfaces.
4. Use a grounded extension cord and receptacle for all units with electric start engines.
5. Adjust collector housing height to clear gravel or crushed rock surfaces.
6. Disengage the control handle before starting the engine.
7. Never attempt to make any adjustments while engine is running, except where specifically recommended in the operator's manual.
8. Let engine and machine adjust to outdoor temperature before starting to clear snow.
9. To avoid personal injury or property damage use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Serious personal injury can occur when gasoline is spilled on yourself or your clothes which can ignite. Wash your skin and change clothes immediately.
    a. Use only an approved gasoline container.
    b. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
    c. Never fuel machine indoors.
    d. Never remove gas cap or add fuel while the engine is hot or running.
    e. Allow engine to cool at least two minutes before refueling.
    f. Never over fill fuel tank. Fill tank to no more than ½ inch below bottom of filler neck to provide space for fuel expansion.
    g. Replace gasoline cap and tighten securely.
    h. If gasoline is spilled, wipe it off the engine and equipment. Move machine to another area. Wait 5 minutes before starting the engine.
    i. Never store the machine or fuel container inside where there is an open flame, spark or pilot light (e.g. furnace, water heater, space heater, clothes dryer etc.).
    j. Allow machine to cool at least 5 minutes before storing.

Operation

1. Do not put hands or feet near rotating parts, in the auger housing or discharge chute. Contact with the rotating parts can amputate hands and feet.
2. The auger control handle is a safety device. Never bypass its operation. Doing so, makes the machine unsafe and may cause personal injury.
3. The control handle must operate easily in both directions and automatically return to the disengaged position when released.
4. Never operate with a missing or damaged discharge chute. Keep all safety devices in place and working.
5. Never run an engine indoors or in a poorly ventilated area. Engine exhaust contains carbon monoxide, an

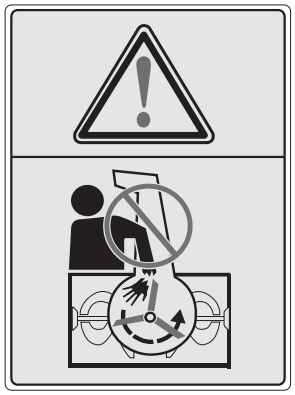
odorless and deadly gas.
6. Do not operate machine while under the influence of alcohol or drugs.
7. Muffler and engine become hot and can cause a burn. Do not touch.
8. Exercise extreme caution when operating on or crossing gravel surfaces. Stay alert for hidden hazards or traffic.
9. Exercise caution when changing direction and while operating on slopes.
10. Plan your snow throwing pattern to avoid discharge towards windows, walls, cars etc. To avoid property damage or personal injury caused by a ricochet.
11. Never direct discharge at children, bystanders and pets or allow anyone in front of the machine.
12. Do not overload machine capacity by attempting to clear snow at too fast of a rate.
13. Never operate this machine without good visibility or light. Always be sure of your footing and keep a firm hold on the handles. Walk, never run.
14. Disengage power to the auger/impeller when transporting or not in use.
15. Never operate machine at high transport speeds on slippery surfaces. Look down and behind and use care when in reverse.
16. If the machine should start to vibrate abnormally, stop the engine, disconnect the spark plug and ground it against the engine. Inspect thoroughly for damage. Repair any damage before starting and operating.
17. Disengage the control handle and stop engine before you leave the operating position (behind the handles). Wait until the auger comes to a complete stop before unclogging the discharge chute, making any adjustments, or inspections.
18. Never put your hand in the discharge or collector openings. Always use a clearing tool to unclog the discharge opening.
19. Use only attachments and accessories approved by the manufacturer.
20. If situations occur which are not covered in this manual, use care and good judgment. Call customer assistance for the name of your nearest servicing dealer.

Maintenance And Storage

1. Never tamper with safety devices. Check their proper operation regularly.
2. Disengage the control handle and stop engine. Wait until the auger/impeller come to a complete stop. Disconnect the spark plug wire and ground against the engine to prevent unintended starting before cleaning, repairing, or inspecting.
3. Check bolts, and screws for proper tightness at frequent intervals to keep the machine in safe working condition. Also, visually inspect machine for any damage.
4. Do not change the engine governor setting or over-speed the engine. The governor controls the maximum safe operating speed of the engine.
5. Snow thrower shave plates and skid shoes are subject to wear and damage. For your safety protection, frequently check all components and replace with original equipment manufacturer's (O.E.M.) parts only. "Use of parts which do not meet the original equipment specifications may lead to improper performance and compromise safety!"
6. Check controls periodically to verify they engage and disengage properly and adjust, if necessary. Refer to the adjustment section in this operator's manual for instructions.
7. Maintain or replace safety and instruction labels, as necessary.
8. Observe proper disposal laws and regulations for gas, oil, etc. to protect the environment.
9. Prior to storing, run machine a few minutes to clear snow from machine and prevent freeze up of auger/impeller.
10. Never store the machine or fuel container inside where there is an open flame, spark or pilot light such as a water heater, furnace, clothes dryer etc.
11. Always refer to the operator's manual for proper instructions on off-season storage.

Your Responsibility:

- Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.



SECTION 2: SETTING UP YOUR SNOW THROWER

NOTE: *The snow thrower is shipped with oil and WITHOUT GASOLINE. After assembly, refer to separate engine manual for proper fuel and engine oil recommendations.*

NOTE: *This Operator's Manual covers several models, handle panels, lights and chute cranks are some features that may vary by model. Not all features referenced in this manual are applicable to all snowthrower models.*

Unpacking

- Cut along corners of the carton and lay it down flat. Remove packing material.
- Remove any loose parts included with unit (i.e., operator's manual, etc.).
- Roll unit out of carton. Check carton thoroughly for any remaining loose part.

Loose Parts

Your snow thrower has been assembled at the factory except the parts shipped loose in the carton. These are listed below.

a. Electric Start Cord (optional)
b. Shear Pins and Cotter Pins

Before Assembly

Disconnect spark plug wire and ground it against the engine to prevent unintended starting.

NOTE: *All references in this manual to the left or right side of the snow thrower is from the operating position only. Exceptions, if any, will be specified.*

Setting up the Snow Thrower

1. Raise the upper handle assembly in the direction shown in Figure 1. Align the upper handles with the lower handle.
2. Tighten two handle knobs firmly to secure the upper handle to the lower handles. See Figure 1.
3. Slide the shift rod connector down over the end of the lower shift rod. Tap the connector until it **locks** over the lower shift rod. See Figure 2.

NOTE: *If the connector is not properly assembled, the shift rod will pivot and changing speed or direction of the snow thrower will not be possible.*

Chute Assembly (all models)

1. Apply a light lubricant (i.e. 3-in-1 oil) to the base of the chute assembly.
2. Place the chute assembly on the lip of the chute adapter. See Figure 3.

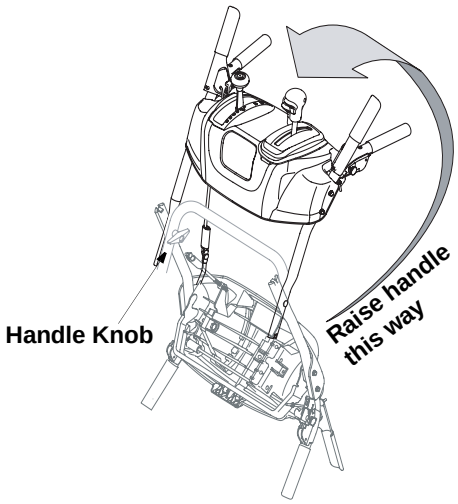


Figure 1

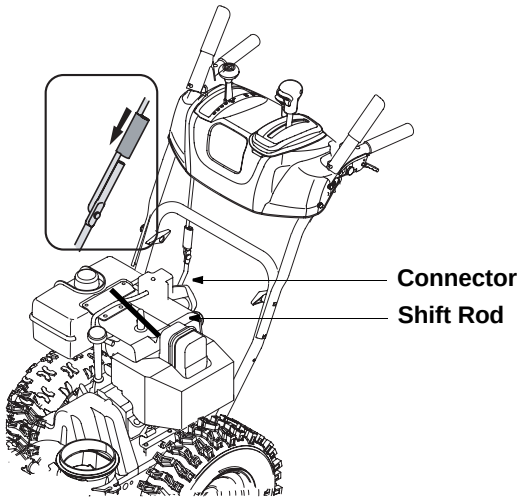


Figure 2

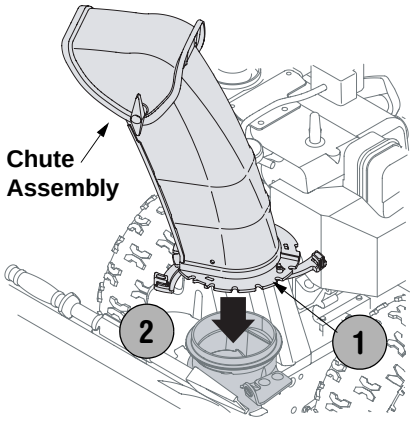


Figure 3

3. One end of each chute keeper is already attached to the chute flange. Pivot the free end of the chute keeper to align it with the chute flange and push it till it snaps into position. See Figure 4. Repeat with remaining chute keepers.

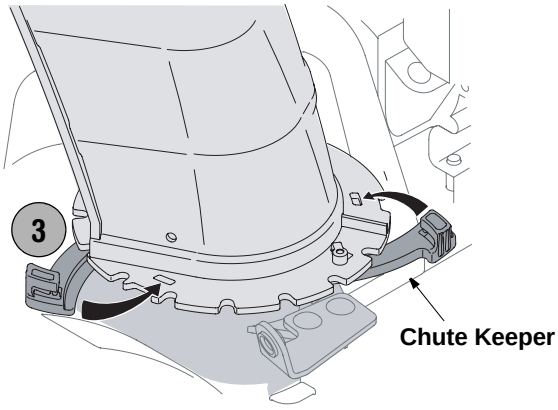


Figure 4

For Models with 4 Way Chute Control Box

1. Pull the hairpin clip out of the clevis pin on the chute support tube. Save this hardware. See Figure 5.

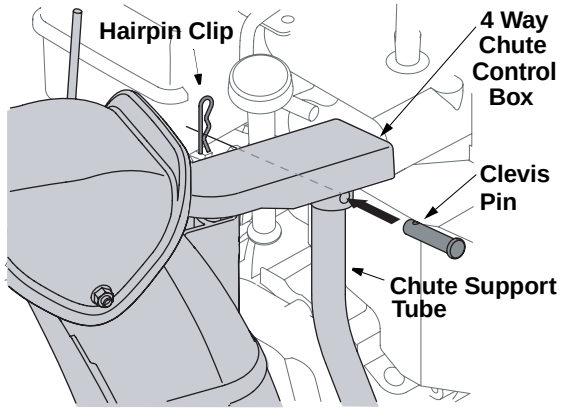


Figure 5

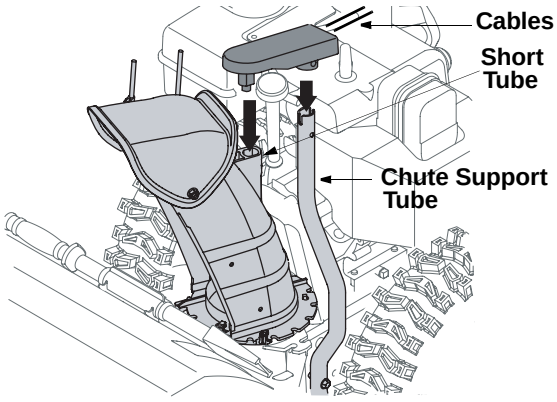


Figure 6

2. Position the chute assembly so the chute opening is facing the front of the unit.
3. Place the chute control box on the short tube of the chute assembly and the chute support tube of the chute assembly as shown in Figure 6, cables should be towards the operator.
4. Insert the clevis pin, earlier removed, through the holes on the chute control box and chute support tube. Secure with the hairpin clip. See Figure 5.

For All Models without Engine Covers

1. Slip the cables, running from the chute to the handle panel into the cable guide located on top of the engine. See Figure 7 .

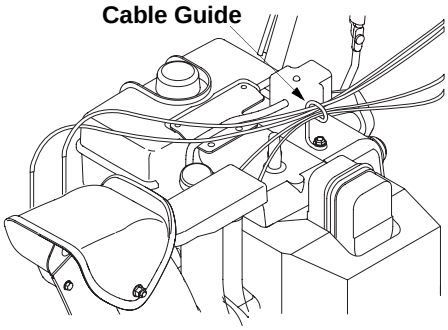
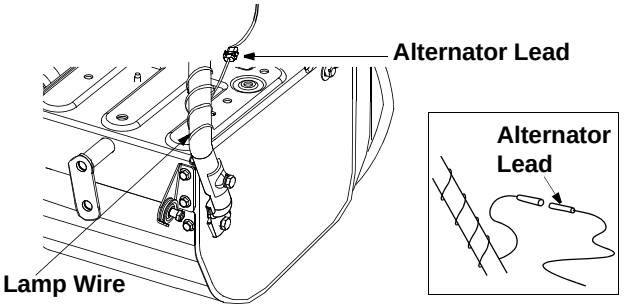


Figure 7

Lamp Wire (optional)

1. Wrap the wire from the lamp down the right handle as shown in Figure 8 .
2. Plug wire into the alternator lead wire under the fuel tank. See Figure 8 inset.



NOTE: Wheels are omitted from illustration for clarity.

Figure 8

Chute Clean-Out Tool

1. The chute clean-out tool is fastened with a cable tie to the rear of the auger housing for shipping purposes. Cut the cable tie and remove the extension cord (optional) before operating the snow thrower.

Final Adjustments

After setting up your snow thrower, check the adjustments as instructed below and make any final adjustments necessary **before** operating the unit.

CAUTION: Perform the following test before operating the snow thrower for the first time and at the start of each winter season. Failure to comply with these adjustment instructions may cause damage to the unit.

Auger Control Test

1. To check the adjustment of the auger control, push forward the left hand control until the rubber bumper is compressed. There should be slack in the cable.
2. Release the control. The cable should be straight. Make certain you can depress the auger control grip against the left handle completely.

WARNING: Do not over-tighten the cable. Over-tightening may prevent the auger from disengaging and compromise the safety of the snow thrower.

- If adjustment is necessary, loosen the hex jam nut and rotate the coupling end of the cable ***(without turning the cable)*** counterclockwise to provide more slack.

3. Recheck the adjustment. Tighten jam nut against the cable when correct adjustment is reached.

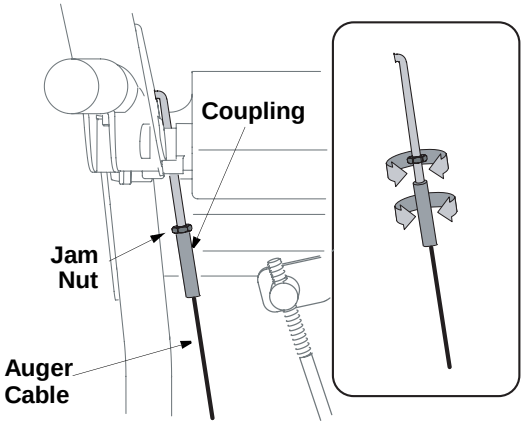


Figure 9

Drive Control & Shift Lever

1. Tip the snow thrower forward so that it rests on the auger housing.
2. Move the shift lever all the way forward to the sixth (6) position.
3. With the drive control lever released, spin the snow thrower wheels by hand. The wheels should turn; however, you may feel some resistance.
4. Engage the drive control. The wheels should no longer turn.
5. Now release the drive control and spin the wheels again.
6. Move the shift lever back to the fast reverse position and then all the way forward again. There should be no resistance in the shift lever and the wheels should turn.
7. If you face resistance when moving the shift lever or the wheels stop when they should not, loosen the lock nut on the traction drive cable and unthread the cable one turn.
8. If the wheels can still be turned when you engage the drive control, loosen the hex jam nut and rotate the coupling end of the cable ***(without turning the cable)*** in one turn. Recheck the adjustment and repeat if needed.
9. Tighten the jam nut to secure the cable when correct adjustment is reached.

NOTE: *For further details, refer to the Adjustment section on page 16.*

Skid Shoe

Locate the shave plate and the skid shoes in Figure 12. The space between this shave plate and the ground can be adjusted. For close snow removal, place skid shoes in the low position. Use middle or high position when area to be cleared is uneven.
It is not recommended that you operate this snow thrower on gravel as loose gravel can be easily picked up and thrown by the auger causing personal injury or damage to the snow thrower.
If for some reason, you have to operate the snow thrower on gravel, keep the skid shoe in the highest position for maximum clearance between the ground and the shave plate.

Some models are equipped with reversible skid shoes and may be turned over to increase their lifespan. See Figure 11.

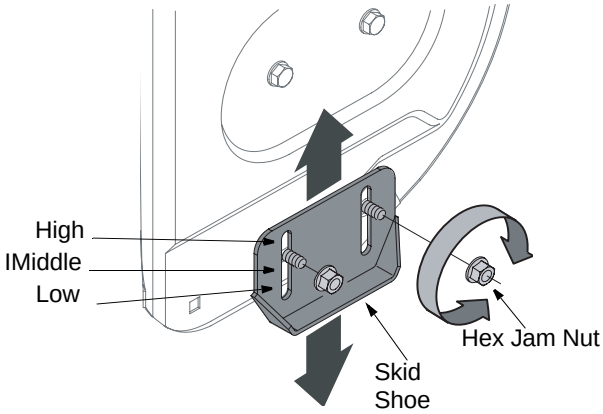


Figure 10- Standard Skid Shoe

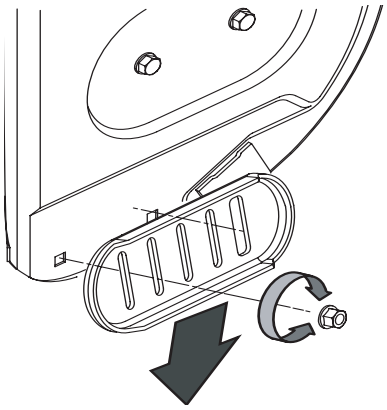


Figure 11- Reversible Skid Shoe

1. Adjust skid shoes by loosening the four hex nuts (two on each side) and carriage bolts. Move skid shoes to desired position.
2. Make certain the entire bottom surface of skid shoe is against the ground to avoid uneven wear on the skid shoes. Retighten nuts and bolts securely.
3. Retighten the hex jam nut and repeat all three tests to verify proper adjustment has been achieved.

Tire Pressure (Pneumatic Tires)

The tires are over-inflated for shipping purposes. Check tire pressure and reduce to 15-20 psi.

NOTE: *If the tire pressure is not equal in both tires, the unit may pull to one side or the other.*

SECTION 3: OPERATING YOUR SNOW THROWER

Know The Controls

Read this owner's manual and safety rules before operating your snow thrower. Compare Figure 12 with your snow thrower to familiarize yourself with the location of various controls and adjustments. Maintain safety while learning about the controls and operating the unit. Save this manual for future reference.

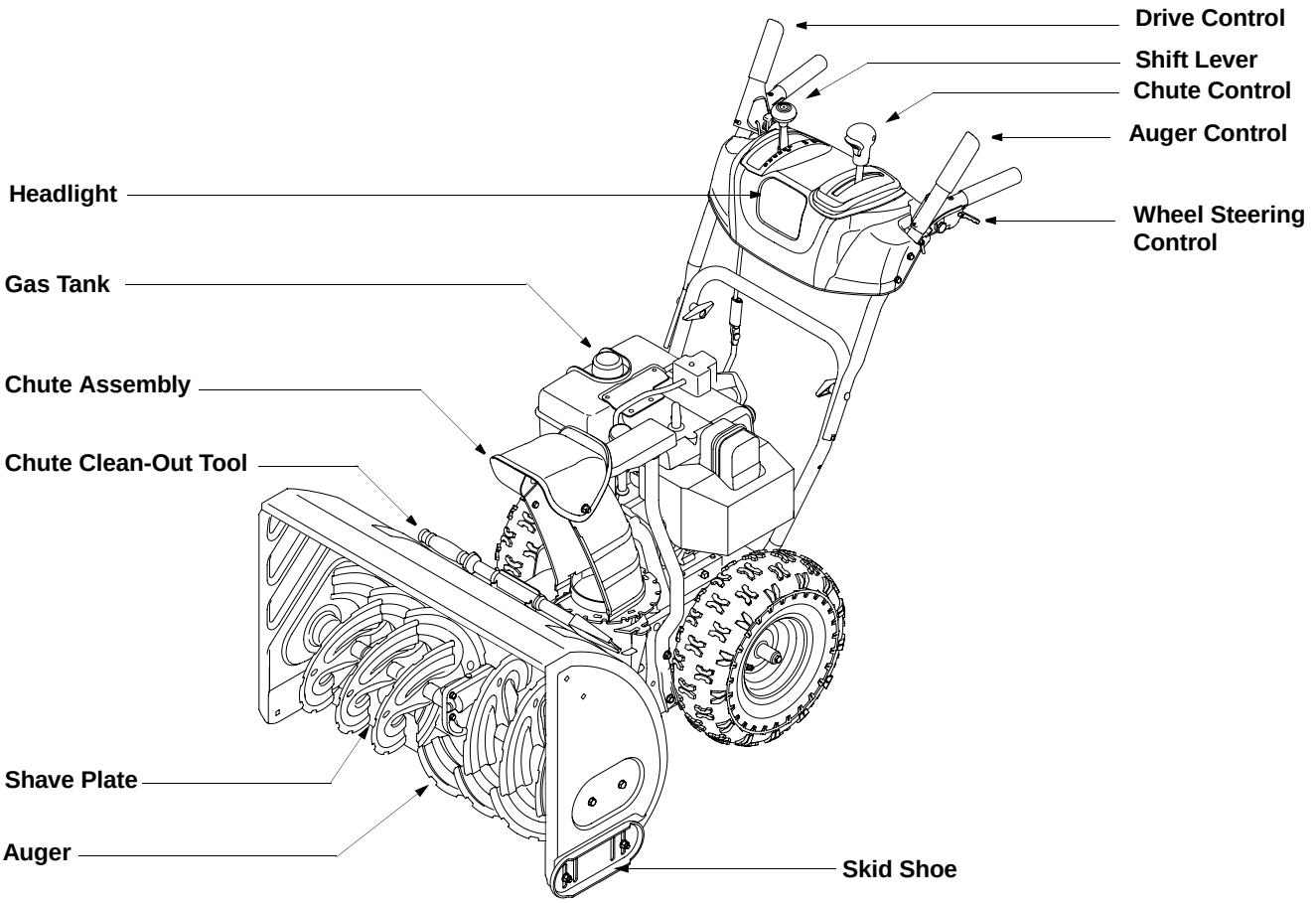


Figure 12

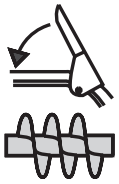
Drive Control/ Auger Control Lock

The drive control is located on the right handle. Squeeze down the traction control to engage the wheel drive. Release to stop.

The drive control also locks the auger control so you can operate the chute crank without interrupting the snow throwing process. If the auger control is engaged simultaneously with the drive control, the operator can release the auger control (on the left handle) and the augers will remain engaged. Release the traction control to stop the augers and wheel drive (the auger control must also be released).

IMPORTANT: Always release the drive control before changing speeds.

Auger Control



The auger control is located on the left handle. Squeeze the auger control to engage the augers. Release to stop the snow throwing action. The drive control must also be released in order to stop the auger.

IMPORTANT: Refer to Auger Control Test on page 7 to adjust the auger control. Read and follow all instructions carefully and perform all adjustments to verify your snow thrower is operating safely and properly.

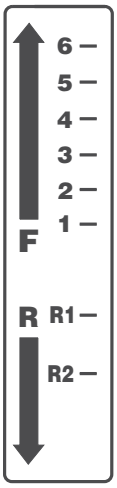
Ignition Key

The ignition key must be fully inserted in the switch before the unit will start. Remove key when snow thrower is not in use. Do not attempt to turn the key.

Discharge Chute

The angle of the discharge chute controls the distance that the snow is thrown. Tilt the discharge chute up for greater distance; tilt down for less distance.

Four Way Chute Control



This four-way control lever is meant to control the direction and distance of snow discharge from the chute. Press the button on the knob and pivot it left or right to rotate the chute to the *direction* that snow will be thrown. Tilt the lever forward or rearward to adjust the *distance* snow will be thrown.

Shift Lever

The shift lever is located in the center of the handle panel and is used to determine ground speed and direction of travel. It can be moved into any of eight positions.

IMPORTANT: Always release traction control before changing speeds.

Forward: The snow thrower has six forward (F) speeds. Position one (1) is the slowest and position six (6) is the fastest.

Reverse: The snow thrower has two reverse (R) speeds—R1 is the slower of the two.

Headlight

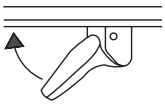
The headlight is on whenever the engine is running.

Chute Clean-Out Tool

The chute clean-out tool is designed to clear a clogged discharge chute. Refer to page 12 for instructions on how to properly use it.

WARNING: Never use your hand to clear a clogged discharge chute. Shut off engine and remain behind handles until all moving parts have stopped before unclogging.

Wheel Steering Controls



The left and right wheel steering controls are located on the underside of the handles. Squeeze the right control to turn right; squeeze the left control to turn left.

NOTE: *Operate the snow thrower in open areas until you are familiar with these controls.*

Skid Shoe

The skid shoe position is determined by the condition of the ground from where snow has to be removed. Higher the snow level, lower will be the skid shoe level. Adjust it accordingly.

Stopping Snow Thrower

1. To stop the wheels, release the traction drive lever of the snow thrower.
2. To stop throwing snow, release the auger drive lever.
3. To stop the engine, push throttle control lever to OFF and pull out the ignition key. Do not turn key.

Before Starting

WARNING: Read, understand, and follow all instructions and warnings on the machine and in this manual **before** operating.

Gas & Oil Fill-Up

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your snow thrower. **Read instructions carefully.**

WARNING: Use extreme care when handling gasoline. Gasoline is extremely flammable and the vapors are explosive. Never fuel the machine indoors or while the engine is hot or running. Extinguish cigarettes, cigars, pipes and other sources of ignition.

Starting The Engine

WARNING: Be sure **no one other than the operator** is standing near the snow thrower while starting or operating. **Do not operate** this snow thrower unless the discharge chute assembly has been properly installed and is secured.

- Attach spark plug wire to spark plug. Make certain the metal loop on the end of the spark plug wire

(inside the boot) is fastened securely over the metal tip on the spark plug.
- Make certain both the auger control and drive control are in the disengaged (released) position.
- Move throttle control up to FAST position. Insert ignition key into slot. Make sure it snaps into place. **Do not attempt to turn the key**.

NOTE: *The engine cannot start unless the key is inserted into ignition switch.*

Electric Starter

Before starting, make sure that the engine has sufficient oil. The snow thrower engine is equipped with a 120 volt A.C. electric starter and recoil starter. The electric starter is equipped with a three-wire power cord and plug and is designed to operate on 120 volt AC household current. Follow all instructions carefully.

Cold Start

NOTE: *If the unit shows any sign of motion (drive or augers) with the clutch grips disengaged, shut the engine off immediately. Readjust as instructed in the "Final Adjustments" section of the Assembly Instructions.*

WARNING: The electric starter must be properly grounded at all times to avoid the possibility of electric shock which may be injurious to the operator.

1. Determine whether your house wiring is a three-wire grounded system. Ask a licensed electrician if you are not certain.

WARNING: If your house wiring system is not a three-wire grounded system, do not use this electric starter under any conditions.

- If your house wiring system is grounded and a three-hole receptacle is not available at the point the snow thrower starter will normally be used, one should be installed by a licensed electrician.
- When connecting the power cord, always connect cord to starter on engine first, then plug the other end into a three-hole grounded receptacle.
- When disconnecting the power cord, always unplug the end from the three-hole, grounded receptacle first.

2. **Attach** spark plug wire to spark plug.
3. Make sure that the auger drive and the traction drive levers are in the disengaged position.
4. Move throttle control lever to FAST position.
5. Push key into the ignition slot. Make sure it snaps into place. *Do not turn key.*
6. Rotate the choke knob to FULL choke position.
7. Push the primer three times.
8. Connect power cord to switch box on the engine.
9. Plug the other end of the power cord into a three-hole, grounded 120 volt A.C. receptacle.
10. Push down on the starter button until the engine starts. Do not crank for more than 10 seconds at a time. This electric starter is thermally protected. If overheated, it will stop automatically and can be restarted only when it has cooled to a safe temperature (a wait of 5 -10 minutes is required).
11. When the engine starts, release the starter button and slowly rotate the choke to OFF position. If the engine falters, rotate the choke to FULL and then gradually to OFF.
12. Disconnect the power cord from the receptacle first and then from the switch box on the engine.
13. Allow the engine to warm up for a few minutes because the engine will not develop full power until it reaches operating temperature. Operate the engine at full throttle (FAST) when throwing snow.

Warm Start

1. If restarting a warm engine, rotate choke to OFF instead of FULL and press the starter button.

Recoil Starter

Make sure that the engine has sufficient oil and the auger drive and the traction drive levers are released.

Cold Start

1. Move throttle control to FAST position.
2. Push key into the ignition slot so that it snaps into place. Do not turn key.
3. Rotate choke control to FULL choke position.
4. Push the primer button while covering the vent hole. Remove your finger from the primer between primes. Do not prime if temperature is above 50° F (10° C); prime two times between 50° F (10° C) and 15° F (-9° C); and prime four times below 15° F (-9° C).
5. Pull the starter handle rapidly. Do not allow the handle to snap back, but allow it to rewind slowly while keeping a firm hold on the starter handle.
6. As the engine warms up and begins to operate evenly, rotate the choke knob slowly to OFF position. If the engine falters, return to FULL choke, then slowly move to OFF choke position.
7. Allow the engine to warm up for a few minutes because the engine will not develop full power until it reaches operating temperature.
8. Operate the engine at full throttle (FAST) when throwing snow.

Warm Start

1. If restarting a warm engine after a temporary shut down, rotate choke to OFF instead of FULL and do **not** prime. Pull starter handle as instructed earlier.

Frozen Recoil Starter

If the starter is frozen and will not turn the engine, proceed as follows:

1. Pull as much rope out of the starter as possible.
2. Release the starter handle and let it snap back

against the starter.
3. If the engine still fails to start, repeat the first two steps. If continued attempts do not free starter, follow the electric starter procedures to start.
4. Avoid freezing of the recoil starter by referring to instructions below.

Before Stopping

1. Run engine for a few minutes to help dry off any moisture on engine.
2. Avoid freezing of the starter by following these steps **before** stopping the snow thrower:

Recoil Starter

a. With the engine running, pull the starter rope with a rapid, continuous full arm stroke three or four times.

Electric Starter

a. Connect power cord to switch box, then to 120 Volt AC receptacle.
b. While the engine is running, push the starter button and spin the starter for several seconds.
c. Disconnect power cord from the receptacle first, then from the snow thrower.

NOTE: *The unusual sound from pulling the starter rope in case of the recoil starter, or from spinning the starter in case of the electric starter, will not harm the engine.*

To Stop The Snow Thrower

1. To stop the wheels, release the traction drive lever on the snow thrower.
2. To stop throwing snow, release auger drive lever.
3. To stop engine, push throttle control lever to OFF and pull out the key. *Do not turn key.*

To Engage Drive

1. With the engine running near top speed, move shift lever to one of six FORWARD positions or two REVERSE positions. Select a speed appropriate for the snow conditions that exist. Use slower speeds until you are familiar with the process.
2. Squeeze traction drive clutch grip against the right handle and the snow thrower will move. Release it and the drive motion will stop.

To Engage Augers

1. To engage augers and start snow throwing, squeeze the left hand auger clutch grip against the left handle. Release to stop augers.
2. While the auger control is engaged, squeeze the drive control to move, release to stop. Do **not** shift speeds while the drive is engaged.

NOTE: *This same lever also locks auger control so you can turn the chute crank without interrupting the snow throwing process.*

3. Release the auger control; the interlock mechanism should keep the auger control engaged until the traction drive control is released.
4. Release the drive control to stop both the augers and the wheel drive. To stop the auger, both levers must be released.

To Throw Snow

CAUTION: Check the area to be cleared for foreign objects. Remove, if any.

1. Start the engine following starting instructions.
2. Rotate the discharge chute to the desired position, (away from bystanders and/or buildings) by moving the chute control.
3. Select the speed according to snow condition.

CAUTION: Never move the shift lever without first releasing the drive clutch.

4. Engage the auger control and drive control levers following instructions above.
5. The interlock feature will allow you to remove your left hand from the auger control lever.
6. When clearing the first pass through the snow, control speed of snow thrower according to the depth and condition of snow.
7. To turn the unit left or right, squeeze the respective wheel steering control. See Figure 12.
8. On each succeeding pass, readjust the chute to the desired position and slightly overlap previous path.
9. After the area is cleared, stop the snow thrower following instructions given below.

Operating Tips

NOTE: *Allow the engine to warm up for a few minutes as the engine will not develop full power until it reaches operating temperature.*

WARNING: The temperature of muffler and surrounding areas may exceed (150^{o} F (65^{o} C). Avoid these areas.

- For most efficient snow removal, remove snow immediately after it falls.
- Discharge snow downwind whenever possible. Slightly overlap each previous swath.
- Set the skid shoes 1/4" below the scraper bar for normal usage. The skid shoes may be adjusted upward for hard-packed snow.

NOTE: *It is not recommended that you operate this snow thrower on gravel as loose gravel can be easily picked up and thrown by the auger causing an injury or damage to the snow thrower.*

- If for some reason, you have to operate the snow thrower on gravel, keep the skid shoe in the highest position for maximum clearance between ground and shave plate.
- Clean the snow thrower thoroughly after each use.

Chute Clean-Out Tool

The chute clean-out tool is conveniently fastened to the rear of the auger housing with a mounting clip. **Never** use your hand to clean a clogged chute.

1. Release both the auger control lever and the **traction/auger control lock lever.**
2. Stop the engine by removing the ignition key.
3. Remove the clean-out tool from the clip which secures it to the rear of the auger housing. See Figure 13 .
4. Use the shovel-shaped end of the clean-out tool to remove any snow and ice in the discharge chute.
5. Re-fasten the clean-out tool to the mounting clip on the rear of the auger housing and restart engine.
6. While standing in the operator's position (behind the snow thrower), engage the auger clutch lever for a few seconds to clear any remaining snow or ice from the discharge chute before continuing to clear snow.

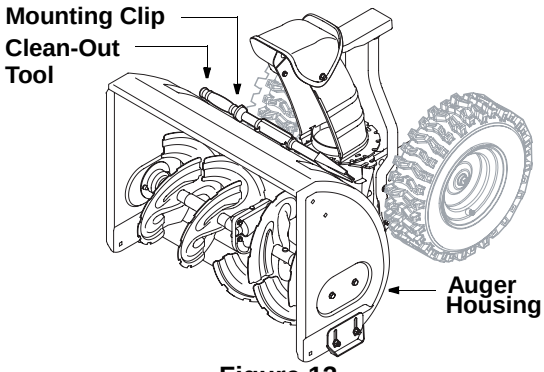


Figure 13

SECTION 4: MAINTAINING YOUR SNOW THROWER

General Recommendations

- Always observe safety rules when performing any maintenance.
- The warranty on this snow thrower does not cover items that have been subjected to operator abuse or negligence. To receive full value from the warranty, operator must maintain the snow thrower as instructed in this manual.
- Some adjustments will have to be made periodically to maintain your unit properly.
- Periodically check all fasteners and make sure these are tight.

WARNING: Always stop engine and **disconnect** spark plug wire before performing any maintenance or adjustments.

Engine

Refer to the separate engine manual packed with your unit for all engine maintenance.

Lubrication

- **Engine:** Refer to the separate engine manual packed with your unit.
- **Drive Mechanism:** Once a season or after every 25 hours of operation, remove rear frame cover and lubricate any chains, sprockets, gears, bearings, and shafts with engine oil or lubricant spray.

IMPORTANT: Avoid oil spillage on rubber friction wheel and aluminum drive plate.

- **Hex Shaft:** Once a season, lubricate the hex shaft with a penetrating oil, but **not** grease,
- **Gear Case:** The gear case is lubricated with grease at the factory and does not require regular lubrication. However, if disassembled for any reason, lubricate with 2 ounces of Shell Alvania™ grease (part # 737-0168). Before reassembling, remove old sealant and apply new sealant.

IMPORTANT: Do not overfill the gear case, since damage to the seals could result. Be sure the vent plug is free of grease in order to relieve pressure.

- **Wheels:** Once a season, remove the bolt from each wheel and take the wheel off the axle. Apply a multipurpose automotive grease on the shaft before putting back the wheels.
- **Shift Rod:** Use a grease or light oil to lubricate the rotating parts of the shift rod after 25 hours of operation.
- **Pivot Points:** All pivoting points on the snowthrower should be lubricated with a light oil once a season. If the unit is equipped with grease fittings, use a grease gun to lubricate these.
- **Drive/Auger Control Lock:** The cam on the ends of the control rods which interlock the traction drive and auger drive clutches must be lubricated at least once a season or every 25 hours of operation using a multi-purpose automotive grease. The cam can be accessed beneath the handle panel

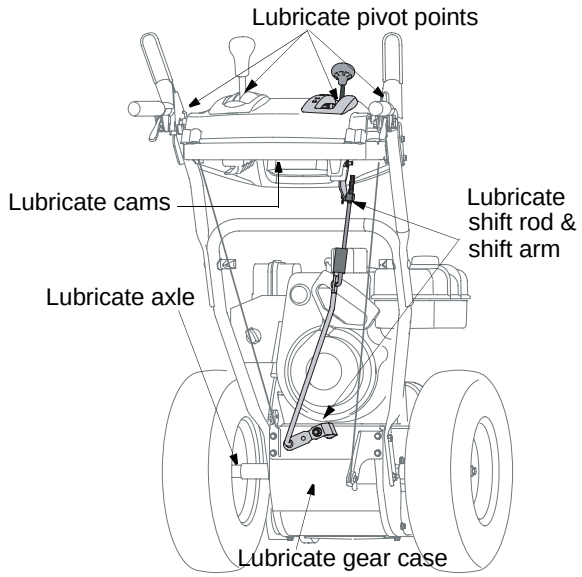


Figure 14

Check V-Belts

Follow instructions below to check the condition of the drive belts every 50 hours of operation.

1. Remove the plastic belt cover on the front of the engine by removing two self-tapping screws.
2. Visually inspect for frayed, cracked, or excessively worn out belts. Replace, if necessary, following instructions on page 14.

Check Friction Wheel

Follow instructions below to check the condition of the friction wheel rubber every 50 hours of operation.

1. Remove two self-tapping screws from the frame cover underneath the snow thrower. Refer to Figure 18.
2. Visually inspect the friction wheel rubber for excessive wear, cracks, or loose fit on the friction wheel drive hub.
3. Also engage the drive control and check if the friction wheel is making contact with drive plate. If it does not make contact, adjust the drive cable and recheck the friction wheel.
4. Replace friction wheel rubber if necessary. Refer to instructions on page 15.
5. Re-attach frame cover to the snow thrower and put the equipment back to operating position.

Check Chute Cables

Once a season or every 25 hours of operation, whichever is earlier, check whether the chute cables have slackened. Adjust if necessary, following instructions on page 17.

SECTION 5: SERVICE & ADJUSTMENT

WARNING: Always stop the engine, disconnect spark plug wire and move it away from the spark plug before performing any adjustments or repairs.

- All adjustments in the Service and Adjustments section of this manual should be checked at least once each season.

Servicing Augers

The augers are secured to the spiral shaft with two shear pins and cotter pins. See Figure 15 . If you hit a foreign object or ice jam, the snow thrower is designed so that the bolts will shear.

1. If the augers do not turn, check to see if the pins have sheared.
2. Replace the pins if needed. Two replacement shear pins and cotter pins have been provided with the snow thrower. Spray an oil lubricant into shaft before inserting new pins and securing with new cotter pins. See Figure 15.

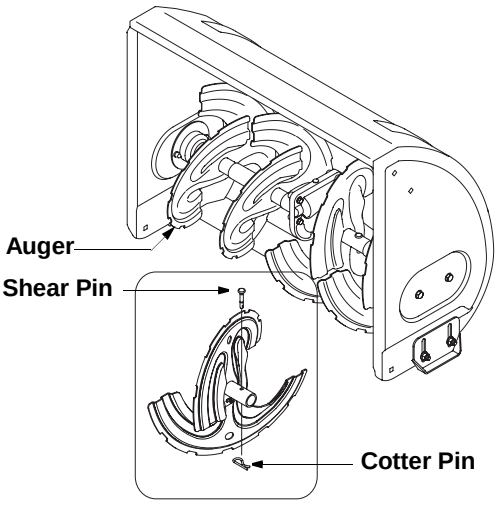


Figure 15

Shave Plate and Skid Shoes

The shave plate and skid shoes on the bottom of the snow thrower are subject to wear. Check these periodically and replace as necessary.

Replacing Skid Shoe

1. Remove four carriage bolts and hex nuts which attach two skid shoes to the snow thrower on two sides. See Figure 16 .
2. Reassemble new skid shoes with the same hardware. Make certain the skid shoes are adjusted to be level.

Replacing Shave Plate

1. After removing both skid shoes, remove four carriage bolts and hex nuts which attach shave plate to the snow thrower housing. See Figure 16 .
2. Reassemble new shave plate, making sure heads of the carriage bolts are to the inside of the housing. Tighten securely. Re-install skid shoes.

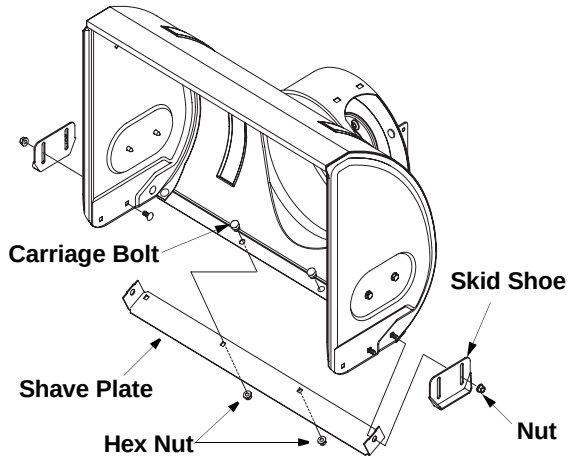


Figure 16

Replacing Belt

Check the condition of both auger belt and drive belt every 25 hours of snow thrower operation. Replace if either shows signs of wear and tear.

1. Remove belt cover by removing the two self-tapping screws that secure it to the snow thrower frame. See Figure 17A.
2. Take auger belt off the pulley as shown in Figure 17B.

Auger Belt

3. Tip the snow thrower up and forward, so that it rests on the housing. Remove two self-tapping screws from the frame cover underneath the snow thrower and move the frame cover away. See Figure 18 .
4. Half turn shoulder screw and slide it out of the mounting bracket. See Figure 19.
5. Unhook spring to release tension on the auger belt. Remove old belt and replace with new belt installing it on the groove. See Figure 19.

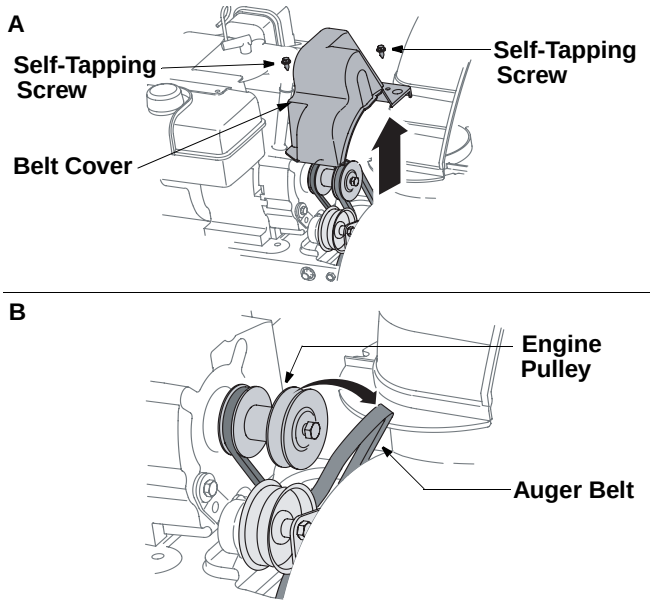


Figure 17

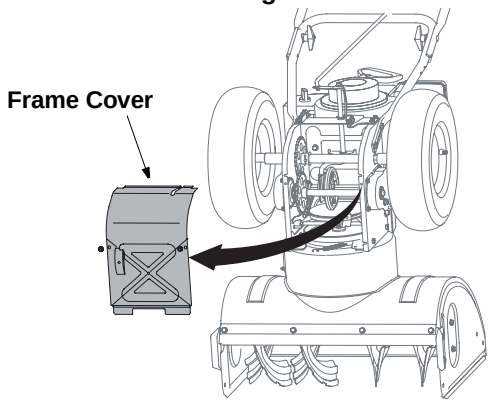


Figure 18

6. Wrap auger belt around the auger pulley. See Figure 19.

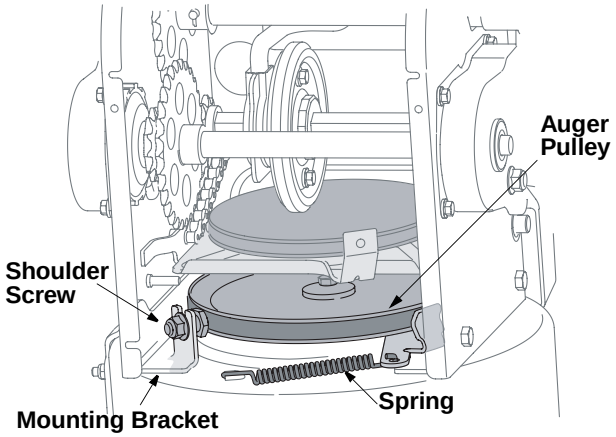


Figure 19

7. Re-insert shoulder screw into the mounting bracket and tighten to secure.
8. Wrap auger belt behind the idler. Reattach the spring to the bolt where it was earlier secured.

9. Re-install frame cover and flip the snow thrower back to the operating position.
10. Wrap auger belt around the engine pulley.
11. Re-install belt cover with self-tapping screws removed before.

Drive Belt

3. *Push idler counter-clockwise and insert a Philips head screwdriver in the hole on the idler as shown in Figure 20. This will release tension on drive belt.

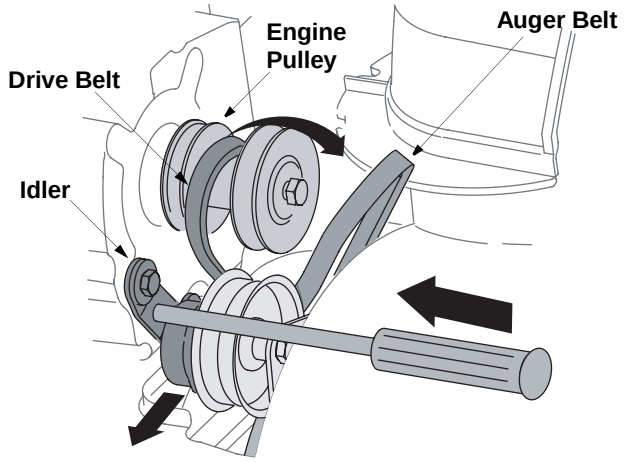


Figure 20

4. Pull drive belt out and away from the engine pulley to remove. See Figure 20.
5. Tip the snow thrower up and forward, so that it rests on the housing. Remove two self-tapping screws from frame cover underneath the snow thrower and move the frame cover away. Refer to Figure 18.
6. Back out the stop bolt to create sufficient gap between the friction wheel disc and the drive pulley. Pull the drive belt from around the drive pulley and clear it off the friction wheel disc. See Figure 21.

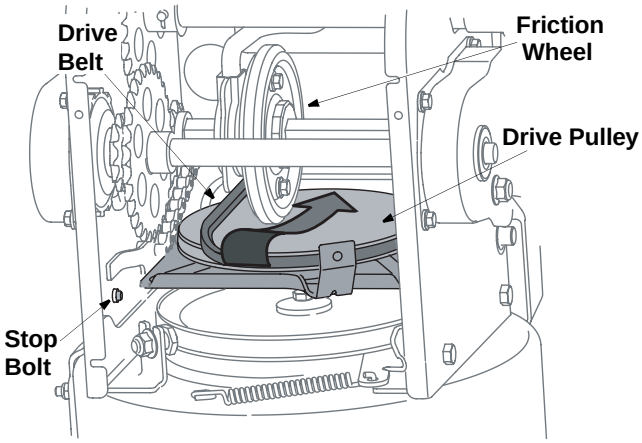


Figure 21

7. Now moving to the other side of the snow thrower again, slide the belt off the crankshaft.
8. Replace with new belt, first sliding it through the crank shaft, then working it around the groove of the drive pulley and finally wrapping it around the engine pulley from where the old belt was removed. Once the belt is firmly placed on the pulleys, make sure to remove the screwdriver from the idler.
9. Re-install auger belt on the engine pulley.
10. Re-attach frame cover on the snow thrower frame and put the equipment back to operating position. Re-attach belt cover with two self-tapping screws removed earlier.

Friction Wheel Rubber

1. Check the rubber on the friction wheel after 25 hours of operation, and periodically thereafter. Replace the rubber if any signs of wear or cracking are found.
2. Drain the gasoline from the snow thrower, or place a piece of plastic under the gas cap. Move shift lever to the R2 position.
3. Tip the snow thrower so that it rests on the housing. Remove two self-tapping screws from the frame cover underneath the snow thrower.
4. Remove bolt securing the right wheel, and remove the wheel from the axle.
5. Remove the four screws securing the right drive cover to the frame. Remove the drive cover from the side of the frame. See Figure 22.
6. Holding the friction wheel assembly, slide the hex shaft to the right. See Figure 23. The spacer on right side of hex shaft may fall.
7. Lift the friction wheel assembly out between the axle shaft and the drive shaft assemblies.
8. Remove the four screws from the friction wheel assembly. Remove friction wheel rubber from between the friction wheel plate. See Figure 24.

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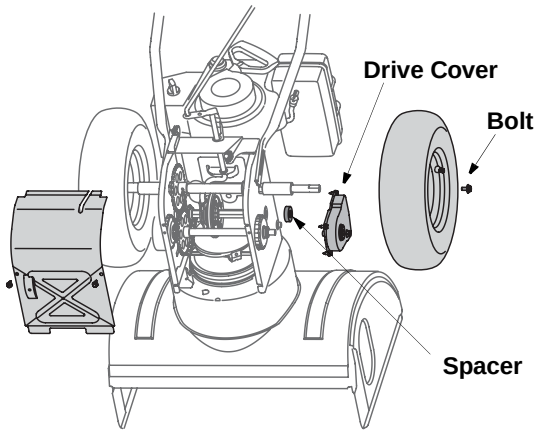

Figure 22

*. First two steps are on page 14.

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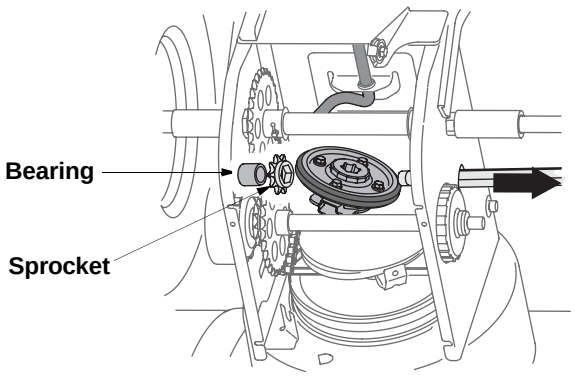

Figure 23

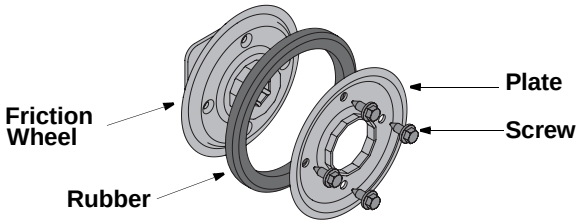

Figure 24

9. Reassemble new friction wheel rubber to the friction wheel assembly, tightening the four screws in rotation and with equal force. See Figure 24.

IMPORTANT: Assemble the rubber on the friction wheel equally for proper functioning.

10. Insert the shift arm assembly into the friction wheel assembly and hold assembly in position. See Figure 25.
11. Slide hex shaft through right side of the housing and the friction wheel assembly.
12. Insert the hex shaft through the sprocket and the spacer. Make certain that chain engages both the large and the small sprocket.

NOTE: *If the sprocket fell from the snow thrower while removing the hex shaft, place the sprocket on the hex shaft. Position the hex hub of the sprocket toward the friction wheel when sliding the sprocket on to hex shaft.*

13. Align the hex shaft with the left bearing and carefully guide this bearing into left side of housing.
14. Install the right bearing on the hex shaft and check that the spacer and bearing in the drive cover are aligned to the steerable shaft. See Figure 25 .
15. Reassemble the drive cover with four screws removed in step 6. Install the right wheel with the bolt removed earlier.
16. Reassemble the frame cover with the two self-tapping screws. Flip the equipment back to the operating position and re-attach the belt cover.

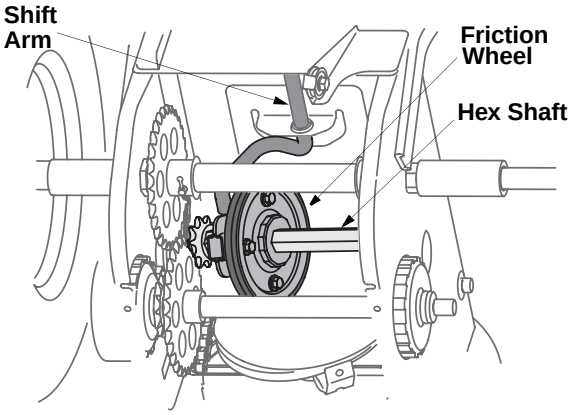

Figure 25

NOTE: *If you placed plastic under the gas cap, be certain to remove it.*

Adjustments

Drive Clutch

Refer to the Final Adjustment section of the Assembly instructions to adjust the drive clutch. To check the adjustment, proceed as follows:

- Drain the gasoline out of your snow thrower's engine, and place a piece of plastic film under the gas cap to avoid spillage.
- Tip the snow thrower forward, allowing it to rest on the auger housing.
- Remove the frame cover underneath the snow thrower by removing self-tapping screws.
- With the traction control released, check if there is 1/8" clearance between friction wheel and drive plate in all positions of the shift lever.
- With the traction control lever engaged, check if the friction wheel solidly contacts the drive plate. See Figure 21. If not, adjust as follows:
- Loosen the jam nut on the traction drive cable and thread the cable in or out as necessary.
- Retighten the jam nut to secure the cable when correct adjustment is reached.

17. Reassemble the frame cover.

NOTE: *If you placed plastic under the gas cap, be certain to remove it.*

Auger Clutch

Refer to instructions on page 6 to adjust the auger control.

Shift Rod

To adjust the shift rod, proceed as follows.

1. Place shift lever in the fastest forward speed. See Figure 26A.
2. Remove hairpin clip from the shift handle under the handle panel. See Figure 26B.
3. Push shift arm assembly down as far as it will go.

See Figure 26C.

4. Thread the ferrule up or down the shift rod as necessary until the ferrule lines up with the upper hole in the shift lever. See Figure 26B.
5. Insert ferrule into the upper hole in shift lever as shown in Figure 26B.
6. Reinstall the hairpin clip.
7. Check for correct adjustment before operating the snow thrower.

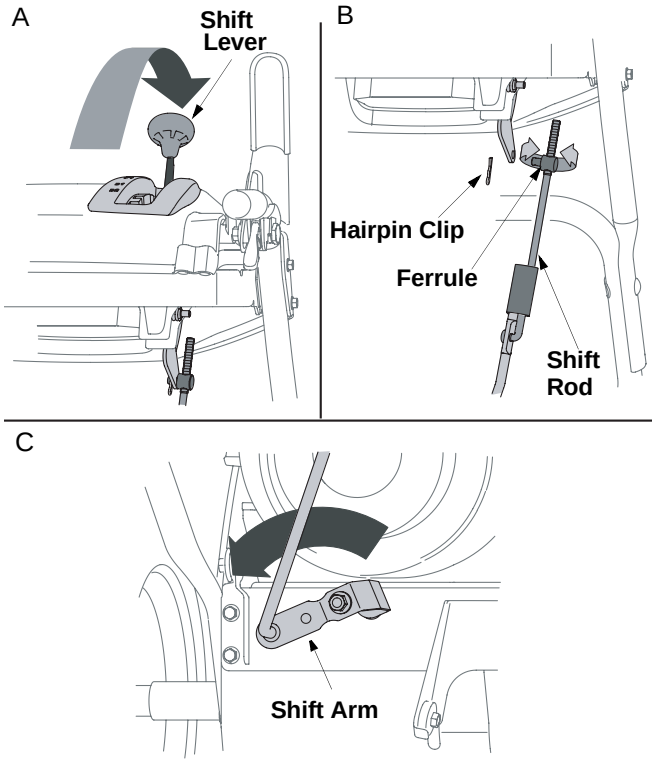

Figure 26

Skid Shoe

Refer to page 7 for details.

Chute Control

If the chute does not rotate fully or its pitch cannot be moved up or down, the four chute control cables will have to be adjusted. Once a season or every 25 hours of operation, whichever is earlier, check whether the cables have slackened.

To adjust these cables, proceed as follows:

1. To tighten cable, loosen the top nut and tighten the bottom nut on the cable.
2. Adjust equally on both sides by working on both cables of each pair. See Figure 27.

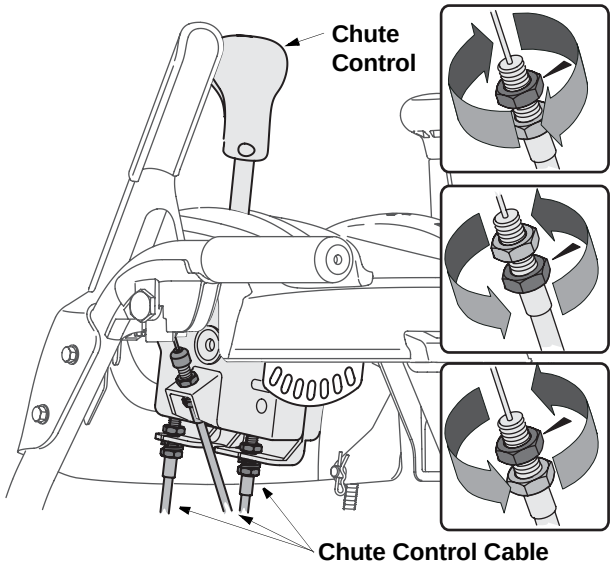

Figure 27

SECTION 6: OFF-SEASON STORAGE

If unit is to be stored over 30 days, prepare for storage as instructed in the separate engine manual packed with your unit.

WARNING: Never store snow thrower with fuel in tank indoors or in poorly ventilated areas, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer or gas appliance.

- Clean snow thrower thoroughly.
- Lubricate as instructed in the ***Maintaining Your Snow Thrower*** section of this manual.
- Store the snow thrower in a clean, dry area.
- Refer to the engine manual for correct engine storage instructions.

NOTE: *When storing any type of power equipment in a poorly ventilated or metal storage shed, care should be taken to rustproof the equipment, especially springs, cables and all moving parts.*

SECTION 7: TROUBLESHOOTING

Problem	Cause	Remedy
Engine fails to start.	1. Fuel tank empty, or stale fuel. 2. Blocked fuel line. 3. Choke not in ON position 4. Faulty spark plug. 5. Safety key not in ignition switch on engine. 6. Spark plug wire disconnected. 7. Primer button not being used properly.	1. Fill tank with fresh gasoline. 2. Clean the fuel line. 3. Move switch to ON position 4. Clean, adjust gap or replace. 5. Insert the key fully into the switch. 6. Connect spark plug wire. 7. Contact service center.
Engine runs erratic.	1. Unit running on CHOKE. 2. Blocked fuel line or stale fuel. 3. Water or dirt in fuel system. 4. Carburetor out of adjustment.	1. Move choke lever to OFF position. 2. Clean fuel line and fill tank with clean, fresh gasoline. 3. Drain fuel tank and carburetor. Refill with fresh fuel. 4. Contact service center.
Loss of power.	1. Spark plug wire loose. 2. Gas cap vent hole plugged. 3. Exhaust port plugged.	1. Connect and tighten spark plug wire. 2. Remove ice and snow from gas cap. Be certain vent hole is clear. 3. Contact service center.
Engine overheats.	1. Carburetor not adjusted properly.	1. Contact service center.
Excessive vibration.	1. Loose parts or damaged auger.	1. Stop engine immediately and disconnect spark plug wire. Tighten all bolts and nuts. If vibration continues, have unit serviced by an authorized service center.
Unit fails to propel itself.	1. Traction control cable in need of adjustment. 2. Drive belt loose or damaged.	1. Adjust traction control cable. Refer to Adjustments. 2. Replace drive belt.
Unit fails to discharge snow.	1. Discharge chute clogged. 2. Foreign object lodged in auger. 3. Auger control cable in need of adjustment. 4. Auger belt loose or damaged. 5. Shear bolt(s) sheared.	1. Stop engine immediately and disconnect spark plug wire. Clean discharge chute and inside of auger housing. 2. Stop engine immediately and disconnect spark plug wire. Remove object from auger. 3. Refer to Final Adjustments on page 6. 4. Refer to page 14. 5. Replace with new shear bolt(s).

NOTE: *This section addresses minor service issues. For further details, contact an authorized service center for assistance.*

SECTION 8: THREE (3) YEAR LIMITED WARRANTY

For three (3) years from the date of original purchase of our products, we will either repair or replace, at its option, free of charge, F.O.B. Factory or authorized service firm, any part found to be DEFECTIVE IN MATERIAL and WORKMANSHIP for the original purchaser. all transportation charges on parts submitted for replacement under this warranty must be paid by the purchaser unless return is requested by the manufacturer.

This warranty DOES NOT apply to any part which has become inoperative through misuse, excessive use, accident, neglect, improper maintenance or alterations by unauthorized persons.

The limited warranty does not extend to the replacement of parts which are not defective, but where regular usage has exhausted the life of the part.

ENGINES, ELECTRIC START KITS, PEERLESS TRANSMISSIONS AND PEERLESS TRANSAXLES ARE WARRANTED BY THEIR RESPECTIVE MANUFACTURER. ALL CLAIMS AGAINST THESE COMPONENTS MUST BE HANDLED THROUGH THE RESPECTIVE MANUFACTURER'S SERVICE DEALERS.

Belts, light bulbs, clutch parts (friction wheels), grass bags, tires, seats, rider deck wheels and cutting blades are covered by a 60 day limited warranty.

Batteries are covered by a 90 day limited warranty.

Fuses, shear bolts and blade adapters are considered consumable items and as such are not warranted.

NOTE: Regular maintenance replacement parts and related inspections and adjustments are excluded from coverage when made as part of normal maintenance service.

TRACTOR ATTACHMENT WARRANTY

Mower decks included with your product, or sold separately, as an attachment for your garden tractors will be warranted according to the above terms of the manufacturer three (3) year limited consumer warranty.

ALL OTHER ATTACHMENTS will be sold under the same condition as above except the warranty will be ONE YEAR FROM DATE OF ORIGINAL PURCHASE.

PERSONAL USE

THE FOREGOING PARAGRAPHS CONSTITUTE THE MANUFACTURER'S ENTIRE WARRANTY WITH RESPECT TO ANY PRODUCT PURCHASED AND USED FOR PERSONAL FAMILY, HOUSEHOLD/RESIDENTIAL PURPOSES, AS DISTINGUISHED FROM COMMERCIAL USAGE.

COMMERCIAL USE

ALL APPLICATIONS OTHER THAN PERSONAL USE AS OUTLINED ABOVE, ARE CONSIDERED COMMERCIAL USAGE.

New products purchased for commercial usage are warranted in the same manner and to the same extend EXCEPT the term of warranty will be 60 DAYS from date of purchase, 90 days if your unit is equipped with an OHV engine. "

WARRANTY SERVICE CAN ONLY BE PERFORMED BY AN AUTHORIZED SERVICE DEALER. ANY NON-ORIGINAL EQUIPMENT REPLACEMENT PART USED ON OR IN A PRODUCT UNDER WARRANTY WILL BE EXCLUDED FROM THAT WARRANTY COVERAGE, AS WILL BE ANY RELATED DAMAGED COMPONENTS RESULTING FROM THE INSTALLATION OF A REPLACEMENT PART FROM ANOTHER SOURCE OTHER THAN THE MANUFACTURER.